

Amendments to the Abstract:

Please replace the Abstract with the following amended Abstract:

~~The invention provides a~~ A system for diagnosing degradation of ~~a plurality of~~ wires in an electrical system having a ~~plurality~~ number of loads connected by the ~~plurality of~~ wires to a direct current power source, the ~~plurality of~~ wires arranged into a bundle near the power source. The system ~~comprises~~ includes a current sensor located proximate to the bundle for producing a signal representative of a current in the bundle, a signal processor coupled to the sensor to receive the signal from the current sensor, a pattern database coupled to the signal processor to provide the signal processor with expected patterns of currents drawn by the ~~plurality~~ number of loads and patterns of arcs which may occur in the ~~plurality of~~ wires, and, an output device coupled to the signal processor to receive an indication of a location at which an arc occurred in the ~~plurality of~~ wires.